

GHOYANOV, A.A. , inzh.

Determining the traffic capacity of wharves, Rech.transp. 18 no.3:13-16  
Mr '59. (MIRA 12:4)

(Wharves) (Cargo handling)

GNOYANOV, A.A., inzh.

Distribution of cargo handling between equipment servicing the  
quay side and the warehouses. Rech. trans. 18 no.8:17-19 Ag '59.  
(MIRA 12:12)

(Loading and unloading) (Cargo handling)

GNOYANOV, A.A., inzh.

Substantiation of the number of loading and unloading machines  
servicing the warehouses on the wharves of a port. Trudy GIIVT  
no.49:18-26 '63. (MIRA 18:6)

5

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~~16(1)~~ 16.3400

SOV/155-59-1-4/30

AUTHOR: Gnoyenskiy, L.S.

TITLE: On the Accumulation of Perturbations in Linear System

PERIODICAL: Nauchnyye doklady vysshey shkoly. Fiziko-matematicheskiye nauki, 1959, Nr 1, pp 24 - 29 (USSR)

ABSTRACT: Given the equation

$$(1.1) \quad x^{(n)} + a_1(t) x^{(n-1)} + \dots + a_n(t)x = f(t)$$

with coefficients continuous on  $[0, T]$ . Let  $X(T)$  be the solution of (1.1) in the moment  $T$ .

§ 1. If by  $f(t)$  it is only known that  $|f^{(k)}(t)| \leq M_k$  ( $k > 0$ ), then the maximal value  $X_{\max}(T)$  is a monotonely increasing function :

$$\lim_{T \rightarrow \infty} X_{\max}(T) = \infty.$$

Let now  $|f(t)| \leq M$  and  $|f'(t)| \leq M_1$ . By consideration of a degenerated variation problem in this case the author obtains

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S/040/61/025/002/016/022  
D201/D302

16.6000(1031, 1121, 1013)

AUTHOR: Gnoyenskiy, L.S. (Moscow)

TITLE: On the accumulation of perturbation in linear systems

PERIODICAL: Prikladnaya matematika i mekhanika, v. 25, no. 2,  
1961, 319 - 331

TEXT: In this article the problem is discussed of determining, at the instant of time  $T$  the solution  $y_{\max}(T)$  of a linear differential or difference equation  $L_n(y) = f(t)$  with  $|f(t)| \leq M_0$  in  $[0, T]$  and  $|f'(t)| \leq M_1$ .  $L_n(y)$  is of the form

$$L_n(y) \equiv y^{(n)} + a_1(t)y^{(n-1)} + \dots + a_n(t)y = f(t). \quad (1.1)$$

The solution of (1.1) is of the form

$$y(T) = \int_0^T G(T, t)f(t)dt \quad (1.3)$$

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Writing  $f'(t) = \varphi(t)$  gives

$$y(T) = \int_0^T F(t) \varphi(t) dt, \quad F(t) = \int_t^T G(T, \tau) d\tau \quad (1.4)$$

A function  $\varphi_m$  of class A [Abstractor's note: Class not defined] is considered satisfying

$$|\varphi(t)| \leq M_1, \quad \left| \int_0^t \varphi(t) dt \right| \leq M_0 \quad (1.6)$$

and producing a maximum value of

$$Y(\varphi) = \int_0^T F(t) \varphi(t) dt \quad (1.7)$$

The algorithm for the maximum is as follows:  $t_j$  ( $j = 2, \dots, p$ )

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are the extrema of  $x = F(t)$  with  $t_1 = 0$ ,  $t_{p+1} = T$ . The following notation is used:  $H = \max F(t)$ ,  $t \in [0, T]$ ,  $z = H - F(t)$ ,  $z^* = -H - F(t) = H + F(t)$ , and  $\delta_j(z) = t_{jr}(z) - t_{jl}(z)$ ,  $\delta_j(z^*) = t_{jr}(z^*) - t_{jl}(z^*)$ . A function  $\phi_{ij}(z, z^*)$  is introduced, dependent on a parameter  $u$ , where  $i, j$  may take any value from 0 to  $p$ ,  $i < j$ . If  $z + z^* < 2H$ , then

$$\phi_{ij}(z, z^*) = \sum_{k=i+1}^j \delta_k(z) - \sum_{k=i+1}^j \delta_k(z^*) \quad (2.1)$$

If for some  $u_a$   $z_a + z_a^* = \gamma_1(u_a) + \gamma_2(u_a) = 2H$  then for  $u > u_a$  (and correspondingly  $z > z_a$ ,  $z^* > z_a^*$ )

$$\phi_{ij}(z, z^*) = \sum_{k=i+1}^j \delta_k(z_a) - \sum_{k=i+1}^j \delta_k(z_a^*) \quad (2.2)$$

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The maximum function  $\varphi_m(t)$  is evaluated in stages. First stage: putting  $z = z^* = u$  and  $\alpha_1$  the first value of  $u > 0$  then for one of the functions  $\Phi_{0j}(u, u)$ ,

$$/\Phi_{0j}(\alpha_1, \alpha_1)/ = C_0, C_0 = \frac{M_0}{M_1}, 0 \leq \alpha_1 \leq H,$$

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and  $\Phi_{0j}(u, u)$  increases in a neighborhood on the right of  $u = \alpha_1$ . Let  $E_{\alpha_1}^+$  be the system of integrals in  $[0, T]$  for which  $F(t) > H - \alpha_1$ , and  $E_{\alpha_1}^-$  the system for which  $F(t) < -H + \alpha_1$ . If  $\alpha_1 = H$  then  $\varphi_{\alpha_1}$  is the maximum function. Otherwise,  $\varphi_m(t)$  corresponds with  $\varphi_{\alpha_1}(t)$  only on the set  $E_{\alpha_1} = E_{\alpha_1}^+ + E_{\alpha_1}^-$ .  $\varphi_m$  is now to be determined in the set  $[0, T] - E_{\alpha_1}$ . The form

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$$\varphi_m(t) = M_1 \operatorname{sign}(F(t) - h_1) \quad (3.3)$$

is finally obtained, where at the points  $t_1, t_2, \dots, t_{i_1}$

$$f_m(t_1) = f_m(t_2) = \dots = f_m(t_{i_1}) = M_0 \quad (3.2)$$

holds where for some left neighborhood of each of these points  $f_m(t) < M_0$  and  $h_1 \geq h_2 \geq \dots \geq h_{i_1} \geq 0$  satisfy (3.3). There are 5

figures and 6 references: 5 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: B.J. Birch, and R. Jackson, The Behavior of Linear Systems with Inputs Satisfying Certain Bounding Conditions, Journal of Electronics and Control, First Series, April 1958, vol. VI, No. 4.

SUBMITTED: November 17, 1960

Card 5/5

CHAYENSKIY, L.S. (Moskva)

One method of optimization of follow-up systems. Prikl.  
mat. i mekh. 25 no.5:948-953 S-O '61. (MIRA 14:10)  
(Automatic control)

GROYENSKIY, L. S. (Moskva); MOVSHOVICH, S. M. (Moskva)

Use of linear programming methods in a certain problem concerning  
the theory of servo systems. Izv. AN SSSR. Otd. tekhn. nauk.  
Energ. i avtom. no. 6:50-66 M 1962. (IRA 16:1)

(Automatic control)

GNOYENSKIY, L.S. (Moskva)

Concerning a problem of optimum control. Prikl. mat. i mekh. 26  
no.1:181-184 Ja-F '62. (MIRA 15:1)

(Automatic control)

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S/040/62/026/004/01C/C13  
D409/D301

262190

AUTHOR: Gnoyenskiy, L.S. (Moscow)

TITLE: On the optimization of servo-systems

PERIODICAL: Prikladnaya matematika i mekhanika, v. 25, no. 4,  
1962, 766 - 771

TEXT: The optimization of a servo-system is considered, to whose input the driving function  $f(t)$  is applied, together with its derivative  $f'(t)$ , amplified by the variable gain-factor  $c(t)$ . The servo-system is described by the equation

$$L_n(y) \equiv a_0(t)y^{(n)} + a_1(t)y^{(n-1)} + \dots + a_n(t)y = f(t) + c(t)f'(t) \quad (1)$$

with initial conditions

$$y(0) = y'(0) = \dots y^{(n-1)}(0) = f(0) = 0 \quad (2)$$

It is assumed that the function  $f(t)$  is filtered of high-frequency noises. The mismatch  $y(t) - f(t)$  is denoted by  $\delta(t, f(\tau), c(\tau))$ . It is assumed that at a fixed moment of time  $T$ , the modulus of  $\delta$  is

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bounded:

$$\sup_f \delta(T, f(t), c(t)) / \leq A, /f'(t)/ \leq m, t \in [0, T] \quad (5)$$

The problem is formulated as follows: It is required to find among the set of integrable functions  $c(t)$  which satisfy the given conditions, a function  $c_{\min}(t)$ , so that

$$\inf_c \sup_f \delta_T'(T, f(t), c(t)) / /f'(t)/ \leq m, t \in [0, T]$$

It is assumed that the function  $f'(t)$  is obtained by accurate differentiation. The above problem is reformulated as follows: It is required to find, among the functions  $\varphi(\tau)$ , which satisfy certain conditions, a function  $\varphi_{\min}(\tau)$ , on which

$$\inf_{\varphi} E(\varphi) = \inf_{\varphi} m \int_0^T /R(\tau) + \varphi(\tau) G(\tau)/d\tau \quad (16)$$

is realized;  $\varphi(\tau) = c(\tau) - c^0(\tau)$ , and  $R$  and  $G$  are related to the fundamental system of solutions of the homogeneous system corresponding to Eq. (1) and to its Wronskian  $W$ . Two new functions  $u(\tau, y)$

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and  $\mathbb{E}(y)$  are introduced. After calculations, one obtains

$$\varphi_{\min}(\tau) = \psi(\tau, y_0) \equiv \psi^0(\tau) \quad (14)$$

where  $y_0$  is the smallest root of the equation

$$\Phi(y) = \Lambda. \quad (15)$$

The validity of Eq. (14) is proved. The numerical calculations relating to the problem under consideration, i.e. the calculation of the fundamental systems of solutions is performed on digital- or analog computers. Thereupon, the functions  $R$  and  $\varphi^0$  can be readily determined. The function  $\mathbb{E}(y)$  is determined (from Eq. (15)) by the method of successive approximations. This is illustrated by an example. X

SUBMITTED: September 20, 1961

Card 3/3

GNOZENSKIY, L.S. (Moskva)

Theory of the follow-up problem. Prikl. mat. i mekh. 26 no.5:960-  
965 S-O '62. (MIRA 15:9)

(Automatic control)

ROYTENBERG, Yakov Naumovich; GNOYENSKIY, L.S., red.; ERUDNO, K.F.,  
tekhn. red.

[Some problems concerning the control of motion] Nekotorye  
zadachi upravleniia dvizheniem. Moskva, Fizmatgiz, 1963.  
138 p. (MIRA 17:1)

(Motion)

GNOYENSKIY, L.S. (Moscow)

"On a problem of the control system synthesis".

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan - 5 Feb 64.

GNOYEN-KTY, L.S. (Moskva); MOVSHOVICH, S.M. (Moskva)

Use of mathematical programming methods in a problem of  
optimum control. Izv. AN SSSR. Tekh. kib. no. 5:16-29 S-O '64.  
(MIRA 17:12)

ACCESSION NR: AP4034530

S/0020/64/155/005/1022/1024

AUTHOR: Gnoyenskiy, L. S.

TITLE: Realization of controlled systems

SOURCE: AN SSSR. Doklady\*, v. 155, no. 5, 1964, 1022-1024

TOPIC TAGS: control system, automatic control, cybernetics, ordinary differential equation, linear differential equation

ABSTRACT: The behavior of an automatically controlled system is determined, in the time interval  $[0, T]$ , by an  $n^{\text{th}}$  order linear differential equation

$$L(y) = f(t) \quad (1)$$

with zero initial condition, where the controlling function  $f$  belongs to the class  $P$  of piece-wise continuous functions whose modulus is bounded by a constant  $m_0$ . B. V. Bulgakov (DAN 60, no. 5, 1946) has solved the problem of determining  $f^0 \in P$  for which the solution of (1) has maximum modulus at  $T$  (maximal accumulated error). This paper deals with the problem of realizing an automatically controlled system through minimizing the maximal accumulated error. The left side of equation (1) is assumed to be of the form  $L(y) = L_1(y) + c(t)y$ , where  $L_1$  is an

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$n$ th order operator, with constant or variable coefficients, corresponding to the unchanging part of the system, and the coefficient  $c(t)$  (to be determined) belongs to the class  $H$  of piece-wise continuous functions bounded in modulus by a constant  $m_1$ . The physical meaning of  $c(f)$  is that of a variable reinforcing coefficient. If  $y(t, f, c)$  denotes the solution of (1) for given  $f$  and  $c$ , the problem is to find  $c^0 \in H$  for which is realized,

$$I = \min_{c \in H} \max_{f \in F} |y(T, f, c)|.$$
 The solution is based on the construction of a sequence of functions  $c_i^0 \in H$  such that

$$R_{i+1} = \max_{f \in F} |y(T, f, c_{i+1})| < R_i = \max_{f \in F} |y(T, f, c_i)|$$

Properties of the Green's function for equation (1) are used in the construction. Sufficient conditions are given for the convergence of the process to the desired value  $I$ , as well as an estimate of the number of steps needed. An upper bound is also given for the number of switchings of  $c^0(t)$  in  $(0, T)$  ( $c^0(t)$  takes only the values  $m_1$  and  $-m_1$ ). The author states that the results obtained can be extended to the case in which one is to choose the coefficients of some of the derivatives

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of  $y(t)$ , in  $L(y)$ , of order less than  $n-1$ . Orig. art. has: 5 formulas.

ASSOCIATION: Vsesoyuznyy nauchnyy mashinostroitel'nyy institut  
(All-Union Machine-Building Correspondence Institute)

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44530

S/024/62/000/006/004/020

E140/E135

AUTHORS: Gnoyenskiy, L.S., and Movshovich, S.M. (Moscow)

TITLE: Application of a linear-programming method to a certain problem in the theory of servomechanisms

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Energetika i avtomatika, no.6, 1962, 50-66

TEXT: The type of servomechanism considered is one in which to the input signal (control signal) is added a component proportional to its own first derivative, with a coefficient varying in time,  $f(t) + c(t) f'(t)$ . The system is described by an  $n$ -th order differential equation and has zero initial conditions. The input signal  $f(t)$  is initially unknown, but it may be known that it belongs to a given class of functions; it is assumed to have bounded rate of change, and  $f'(t)$  has only a finite number of discontinuities of the first kind in any finite interval. The signal  $f(t)$  is freed of high-frequency noise by filtering. The gain factor  $c(t)$  is assumed piecewise constant and bounded. The quality factor of the system will be the error  $y(t) - f(t)$ .  
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L 20499-65 EPF(n)-2/EWT(d) PG-4/Pk-4/P1-4/PO-4/Pq-4/Pu-4 IJP(c)/ASD(n)-5/  
AFMD(p)/ESD(dp) WW/BC  
ACCESSION NR: AP4048820 S/0280/64/000/005/0016/0020

AUTHOR: Gnoyeskiy, L.S. (Moscow); Movshovich, S. M. (Moscow)

TITLE: Application of the methods of mathematical programming to the problem of optimum control B

SOURCE: AN SSSR. Izv. Tekhnicheskaya kibernetika, no. 5, 1964, 16-29

TOPIC TAGS: automation, control system optimization, mathematical programming

ABSTRACT: The problem examined in this article is as follows: The differential equation q

$$\dot{X} = A(t)X + b(t)u(t), \quad X(0) = X_0 \quad (1)$$

with continuous coefficients describes the behavior of a controlled system, where  $A(t)$  is a square matrix of order  $n$ ,  $X(t)$  and  $b(t)$  are the  $n$  - dimensional vectors. The control function  $u(t)$  is piecewise continuous and  $|u(t)| \leq 1$ . It is required to find such  $u_{opt}(t)$  from a given class of functions which would return the system to the origin from a position  $X_0$  ( $x_{10}, \dots, x_{n0}$ ) in the shortest time  $T_{opt}$ . A more general problem, in which the phase

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plane coordinate is bounded, i.e.  $|x_i(t)| \leq m_i$ ,  $i=1, \dots, n$ , is also investigated. The solution of (1) is of the form

$$X(T, u) = \zeta(T) + \int_0^T G(T, t) u(t) dt. \quad (2)$$

so that the difficulty of solution is not only determined by the order of equation (1) but also by the form of the integrand function  $G_i(T, t)$  in Cauchy's formula (2) (such as the number of extremum points in the interval  $[0, T]$ ). The integrand can be approximated by a finite sum with arbitrary accuracy, which reduces both problems to the problem of the location of the minimum of a convex multivariate function  $\phi(\tau, u)$  in a bounded region. First, a piecewise constant approximation reduces the problems to finding a minimum of a convex function with linear boundaries. A piecewise linear approximation results in the problem of minimization of a convex function with convex and linear boundaries, reducing drastically the number of variables at the same time. Minimization of the time required by the system to return to its origin is accomplished. A simplification of the simplex method, which allows the use of reference-free programming plans, is proposed and results in definite computational advantages in transitions from one instant of time to the next. An iteration method is proposed for the solution of the first problem, based on the Kuhn-Tucker optimality

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criterion and the Gol'shteyn-Yudin theorem (Avtomatika i Telemekhanika, 1963, XXIV, No. 12). It is shown that the derived algorithm gives a solution with a finite number of iterations. The method is then extended to the case of piecewise parabolic and piecewise polynomial approximation. This approximation allows a further decrease in the number of variable functions  $\phi(T, u)$ . The boundaries remain convex but their form becomes more complex with the increase in the degree of the polynomial. Orig. art. has: 47 equations, 3 tables and 1 figure.

ASSOCIATION: None

SUBMITTED: 03Jun64

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SUB CODE: IE, DP

NO REF SOV: 007

OTHER: 002

Card 3/3

BRILIN, N.S., dots., KISLOV, I. A. - ispol. obyazaniya dots.;  
GROYEV, A.M., ispol. obyazaniya dots.

[Methods manual on projection with numerical marks and  
perspective] Metodicheskoe posobie po proektiraniyu s chis-  
lovymi oznacheniyami i perspektivnoy. Moskva, 1965. 75 p.  
(MIRA 18:12)

1. Moscow. Gidromeliorativnyy institut. 2. Kafedra na-  
uchatel'noy geometrii i izmereniya Gidromeliorativnogo  
instituta.

SINITSYN, K.D., kand. tekhn. nauk; GVOYEV, P.S.; KRAVCHENKO, K.D.;  
ANAN'YEV, V.I., otv. red.; MANVELOVA, Ye.S., tekhn. red.

[Testing new equipment for the manufacture of sausage] Is-  
pytanie novogo oborudovaniia kolbasnogo proizvodstva. Mo-  
skva, 1962. 87 p. (MIRA 16:4)

1. Moscow. Tsentral'nyy institut nauchno-tekhnicheskoy in-  
formatsii pishchevoy promyshlennosti. 2. Vsesoyuznyy nauchno-  
issledovatel'skiy institut myasnoy promyshlennosti (for  
Sinit'syn, Gvoyev, Kravchenko).  
(Food machinery--Testing)

LAVROVA, A.P., kand. tekhn. nauk; GROMOV, P.G., inzh., KALENOVA, M.S.,  
starshiy nauchnyy sotrudnik; GUSEVA, A.H., mladshiy nauchnyy  
sotrudnik; MOROZOVA, L.I., mladshiy nauchnyy sotrudnik;  
KHARITONOV, V.A., inzh.; KANAREVSKIY, A.A., inzh.; MAZYAKIN, A.V.,  
inzh.; LISHFAY, V.M., inzh.; IL'YASHENKO, M.A., kand. veter. nauk;  
RYNDINA, V.P., inzh.; LOGINOVA, M.M., mladshiy nauchnyy sotrudnik;  
CHUDINA, S.A., mladshiy nauchnyy sotrudnik; TRUDOLIUBOVA, G.B.,  
starshiy nauchnyy sotrudnik; KARGAL'TSEV, I.I., assistant;  
MIKHAYLOVA, A.Ye., mladshiy nauchnyy sotrudnik; KARPOVA, V.I.,  
mladshiy nauchnyy sotrudnik; MERKULOVA, V.K., mladshiy nauchnyy  
sotrudnik; POLETAYEV, T.N., mladshiy nauchnyy sotrudnik

Study of the heat treatment conditions of smoked and cooked  
sausage. Izv. VNIIMP no.10:24-63 '64. (MIRA 18:11)

1. Kafedra tekhnologii Moskovskogo tekhnologicheskogo instituta  
myasnoy i molochnoy promyshlennosti (for Kargal'tsev).

YERGALIYEV, E.Ye.; GNOYEVIKH, B.M.

Conveying machine for copper pouring. TSvet. met. 33 no.10:79-80  
O '60. (MIRA 13:10)

1. Irtyshskiy polimetallicheskiy kombinat.  
(Copper--Metallurgy) (Conveying machinery)

GNOYEVYKH, M.A., inzh.

Irrigation by the use of extended furrows and strips in the  
Ukraine. Gidr. i mel. 13 no.11:19-21 N '61. (MIRA 14:10)

1. Ukrainskaya akademiya sel'skokhozyaystvennykh nauk.  
(Ukraine--Irrigation)

GNOYEVAYA, V. L.

Gnoyevaya, V. L. -- "Hygienic Evaluation of Food Plant Concentrates."  
Acad Med Sci USSR. Moscow, 1956. (Dissertation For the Degree in Candidate  
in Medical Sciences).

So: Knizhnaya Letopis', No. 11, 1956, pp 103-114

GNOYEVAYA, V. L.

✓ Fluorine metabolism. M. I. Krylova and V. L. Gnoyeva (Briaman Sci. Research Sanit. Inst., Moscow). *Vo-  
proz Pizaniya* 15, No. 4, 37-41(1960).—Expts. conducted  
with white rats indicated that the retention of the dietary  
F is nearly the same for inorg. (NaF) and org. (in feeds)  
F compds. (55-86% retention from the daily allowances of  
0.211-0.254 mg. F). The amt. of F excreted with feces  
was greater than that excreted with urine when the rats  
received 500 mg. CaCO<sub>3</sub>/day; the reverse was true for the  
rats receiving no addnl. Ca. Women 25-35 years old, re-  
ceiving 1.913-2.240 mg. F/day, also showed a pos. F bal-  
ance (12-27% retention). Under normal dietary conditions  
(3400 kcal./day) the excretion of F in the urine was greater  
than that in the feces (1.125-1.641 and 0.377-0.438 mg./day  
of the dietary F, resp.). The same degree of the F utiliza-  
tion was found for both the inorg. and org. F allowances.  
E. Wierzbicki

G. NOYEVAYA, V. L.

✓ Role of various vegetables in mineral metabolism of children. V. L. Gnoevaya, K. A. Kuzmina, V. P. Rubtsovich, and L. M. Vekua (Kripman Sci.-Research Sanit. Inst., Moscow). *Voprosy Pitaniya* 15, No. 5, 77-8 (1980).  
 Three boys, 8-9 years old, received for 11 days a special diet of 2200-2300 kcal. in which the main component was a mixt. of cereals (100 g.); in the exptl. diets 55 g. of the cereals was replaced in the equiv. cal. amt. by white (I) (contg. 40 mg. % Ca.) or red (II) cabbage. During the last 6 days of the nutritional expt. the amts. of N, Ca, P, Mg, and Mn in the diet and excreted with feces and urine were determined. The daily dietary intake of N, Ca, and P for the control and the I- and II-contg. diets were 8.73, 11.13, and 10.43 (N); 0.512, 0.782, and 0.726 (Ca); and 1.146, 1.360, and 1.157 (P), resp. Av. daily balances of the nutrients were: N, +0.15, 0.33, and 0.04; Ca, +0.134, 0.369, and 0.228; P, +0.159, +0.363, and -0.113; Mg, +0.073, 0.043, and 0.027; and Mn +0.00188, 0.00310, and 0.00046 g., resp. Thus, I and II greatly differ in their effects on the N and P balances.  
 R. Wlethick

GNOYEVAYA, V.L., kandidat meditsinskikh nauk; IVANOVA, Ye.N., kandidat  
meditsinskikh nauk (Moskva)

Participation of feldshers in the sanitary inspection of food stores.  
Fel'd. 1 akush. 21 no.9:45-49 S '56. (MLRA 9:10)  
(GROCERY TRADE--HYGIENIC ASPECTS)

KRYLOVA, M.I.; GHOYEVA, V.L.; SRIBNER, E.A.

Effect of the type of diet on fluorosis morbidity. Vop.pit. 16  
no.1:48-52 Ja-F '57. (MLRA 10:3)

1. Iz otdeleniya gigiyeny pitaniya (zaveduyushchiy - professor  
N.I.Orlov) Gosudarstvennogo nauchno-issledovatel'skogo instituta  
imeni Erismana, Moskva.

(FLUORINE, pois.

fluorosis, exper., relation to calcium intake in rats  
(Rus))

(CALCIUM, metab.

intake, relation to develop. of exper. fluorosis in rats  
(Rus))

GNOYEVAYA, V.L., kand. med. nauk.; IVANOVA, Ye.M., kand. med. nauk (Moskva)

Role of the feldsher in the sanitary inspection of the collective  
farm market. Fel'd i akush. 22 no.6:37-40 June '57. (MIRA 12:3)  
(MARKETS--SANITATION)

*Onogolnyy*  
SHITSKOVA, A.P.; GNOVYAYAYA, V.L.; KALININA, K.A.; MASHEVSKAYA, M.I. (Moskva)

Role of certain vegetables in mineral metabolism in children [with summary in English]. Vopr.pit. 17 no.1:54-58 Ja-F '58. (MIRA 11:4)

1. Iz otdeleniya pishchevoy gigiyeny (zav. - prof. N.I.Orlov)  
Moskovskogo nauchno-issledovatel'skogo sanitarnogo instituta  
imeni P.F.Krismana.

(VEGETABLES, effects,  
on mineral metab. in child. (Rus))

(NITROGEN, metabolism,  
eff. of vegetables in child. (Rus))

(CALCIUM, metabolism,  
same)

(PHOSPHORUS, metabolism,  
same)

(AGNIUM, metabolism,  
same)

GNOYEVA, V.L.; KRYLOVA, N.I.; RUSSKIKH, V.V.

Evaluation of the new insecticide methylethylthiophos with special reference to food hygiene. Gig. i san. 24 no.5:34-38 My '59. (MIRA 12:7)

1. Iz Moskovskogo nauchno-issledovatel'skogo instituta sanitarii i  
gigiyeny imeni F. F. Erismana Ministerstva zdravookhraneniya RSFSR.  
(PHOSPHATES, toxicity,  
methylethylthiophos, animal studies (Rus))

RUSIN, Nikolay Mikhaylovich; GNOYEVAIA, Vera Leont'yevna; BONDAREV, G.I.,  
red.; SENCHILLO, K.K., tekhn. red.

[Some problems in food hygiene in rural areas] Nekotorye voprosy  
gigieny pitaniia v sel'skoi mestnosti. Moskva, Gos. izd-vo med.  
lit-ry Medgiz, 1961. 146 p. (MIRA 14:7)  
(RESTAURANTS, LUNCHROOMS, ETC.—SANTITATION)  
(FOOD—ANALYSIS) (FOOD POISONING)

DENISOV, G. Ye., inzh.; GNOYEVETS, I. F.

Experience in the consolidation of main and approach lines.  
Put' 1 put. khoz. 6 no.10:8-13 '62. (MIRA 15:10)

1. Nachal'nik Chistyakovskoy distantzii Donetskoy dorogi  
(for Denisov). 2. Nachal'nik Shterovskoy distantzii Donetskoy  
dorogi (for Gnoyevets).

(Railroads—Consolidation)

L 63241-65

ACCESSION NR: AP5018892

UR/0310/55/000/007/0056/0058  
656.62.(597.1) 003

AUTHORS: Bui-Din'-T'ye<sup>44,55</sup> (Dean of exploitation faculty); Goryanch<sup>44,55</sup> A. I. (Senior lecturer); Ragozin, B. (Candidate of technical sciences); Yumin, K. (Candidate of technical sciences) <sup>44,55</sup>

TITLE: Water transport in the democratic republic of Viet Nam

SOURCE: Rechnoy transport, no. 7, 1965, 36-58

TOPIC TAGS: ship navigation, naval vessel, naval equipment, transportation <sup>44,55</sup>

ABSTRACT: Navigation conditions and types of vessels in North Viet Nam are described. The main water transportation lines are the T'an-Huo-Wen channel running parallel to the sea coast and the river systems of the Red river (with the tributaries Ta and Lo), the T'ai Pin river, and the "fourth zone" rivers Ma, Ch'u, and others. These waterways are navigable the year round, but their depths differ with seasons. The current velocities range from 0.8 to 7 km/hour, reaching 10 km/hr in some places. Tides in the marine ports of Tonkin Bay reach 1.5 m on the average and 4 m in the main river estuaries. All freighters belong to two government owned steamship companies, the passenger ships to one company of combined government-private ownership. The sailboats and rowboats are private. The river fleets

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L 63241-65

ACCESSION NR: AP5018892

consist of steamers (45 to 220 hp) bought in Red China, wooden or metal barges, and 108-hp towboats. Average passenger ships were designed for 130 persons, with the largest, the "Da Nang," for 360. Freighters with a carrying capacity of 600-750 tons, towboats of 500 hp, and 500-800 ton barges were used on minor coast routes. Large numbers of smaller sailing vessels (10-15 tons) operate in the internal waterways. Main seaports are Hon Gai, Haiphong, and Ben Thuy. They are equipped with modern, highly mechanized loading systems consisting of steam- and power-operated cranes, auxiliary railroads, and long-range coal-loaders. Orig. art. has: 1 table and 5 photographs.

ASSOCIATION: Khanoyskiy institut inshenerov transporta (Hanoi Institute of Transportation Engineers) [Bui]; GIIVT [Gnoyanoy]; NIIVT [Ragozin, Yimlin]

SUBMITTED: 00 44,55

ENCL: 00 44,55

SUB CODE: 00

NO REF SOV: 000

OTHER: 000

Card <sup>KC</sup> 2/2

ONISTYI, A.I., SAVENKO, Ya.F.; DMITRIYEV, V.A.

Work practices of the V. I. Shchebetovskii brigade in a longwall  
equipped with a USB-2 coal plow. Ugol' 40 no.3:6-10 Mr '65.  
(MIRA 18:4)

1. Shakhta No.54 tresta Antratsit (for Gnoyevoy). 2. Kommunar-  
skiy gornometallurgicheskii institut (for Savenko, Dmitriyev).

GNOYEVOY, P.; MALYUTIN, P.; LAVROVA, G.

Mechanization of thermal processing of sausages. Mias. ind.  
SSSR 32 no.3:13-15 '61. (MIRA 14:7)  
(Sausages—Equipment and supplies)

GNOYEVOY, P.

A book with many shortcoming defects ("Equipment of enterprises of the meat industry" by G.A. Faleev. Reviewed by P. Gnoevoi).  
Mais. ind. SSSR 32 no.3:58 '61. (MIRA 14:7)  
(Meat industry--Equipment and supplies)  
(Faleev, G.A.)

GORBATOV, V. M.; GNOYEVVOY, I. S.; MAZYUKOV, V. N.

"On the results of experimental determination of thermal parameters of sausages fine structure."

report presented at the 10th Annual Mtg, European Meat Research Workers' Association, Roskilde, Denmark, 7-15 Aug 65.

All-Union Res Inst of the Meat Industry, Talalikhin 26, Moskva

GORBATOV, V.M.; MALYUTIN, P.I.; GNOYEVVOY, P.S.; DOLGOVSKIY, V.V.,  
otv. za vyp.; MANVELOVA, Ye.S., tekhn. red.

[Fine grinding of meat] Tonkoe izmel'chenie miasa. Mo-  
skva, TSentr. in-t nauchno-tekhn. informatsii pishchevoi promyshl.,  
1962. 21 p. (MIRA 16:4)  
(Meat grinders)

GNOYEVOY, P.S., inzh.; NOVIKOV, V.G., inzh.; GORBUNOV, M.A., inzh.;  
KONAREVSKIY, A.A., inzh.; BESSTRASHNOVA, G.M., mladshiy  
nauchnyy sotrudnik; GINZBURG, O.M., mladshiy nauchnyy  
sotrudnik; SKOBELEV, M.V., mladshiy nauchnyy sotrudnik

Experimental unit for studying the thermal and humidifying  
processes in sausage production. Trudy VNIIMP no.12:104-  
111 '64. (MIRA 18:2)

S/040/62/026/001/020/023  
D237/D304

26.2/95

AUTHOR: Gnoyevskiy, L.S. (Moscow)

TITLE: On the problem of optimal control

PERIODICAL: Akademiya nauk SSSR. Otdeleniye tekhnicheskikh nauk. Prikladnaya matematika i mekhanika, v. 26, no. 1, 1962, 181-184

TEXT: The control system is described by Eqs.(1) and (2)

$$\dot{x}_j + \sum_{k=1}^n a_{jk}(t)x_k = b_j u(t) \quad (j = 1, \dots, n) \quad (1)$$

$$|u(t)| \leq m \quad (2)$$

The solution  $x(x_1, \dots, x_n)$  satisfies at  $t=0$ , initial conditions  $x=x_0(x_{10}, \dots, x_{n0})$  and a set  $N_k$  is given such that  $x(x_1, \dots, x_n) \in N_k$ , then  $x_1=a_1, \dots, x_k=a_k$ , where  $a_1, \dots, a_k$  are constants. It is assumed that there

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D237/D304

On the problem of ...

exists a set  $V$  of functions  $u(t)$  satisfying (2) such that if  $u(t) \in V$ , then the solution of (1) is transposed from  $x_0$  into  $N_k$ . The problem consists of finding such a function  $u_{\min}(t)$  which would transpose the solution from  $x_0$  into  $N_k$  in the shortest time. This problem was investigated by other authors and general results were obtained. The author solves it for the practically important case  $k=2$ , by a generalized method of accumulation of perturbations. It is similar to the method used by N.N. Krasovskiy (Ref. 3, *Avtomatika i telemekhanika*, v. 18, no. 11, 1957), but differing from it in details. There are 5 references: 4 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: R. Bellman, I. Hickeberg and O. Cross, *Quarterly Applied Mathematics*, v. 14, no. 1, 1956. ✓B

SUBMITTED: July 7, 1961

Card 2/2



BYCHKOV, V.P.; GNTUNI, Zh.S.; CHURSIN, P.I.

Analyzing the effect of routine perturbances and parameters  
of the system on static conditions of the electric drive of  
a continuous mill. Izv. AN Arm. SSR. Ser. tekhn. nauk 16  
no.6:57-61 '63. (MIRA 17:1)

GNTUNI, Zh.S., kand. tekhn. nauk

Effect of type disturbances and parameters of the electric drive of the finishing group of a continuous sheet-rolling mill on the tension and thickness of a hot sheet. Sbor. nauch. trud. LPI 22:11-23 '64.

(MIRA 18:12)

rusian (USSR) Biblioteka i Informatsiya  
Zavedeniye.

Biblioteka i Informatsiya Estestvenno-nauchnoy  
Literatury (Bibliography of Natural  
Science Literature, by) E. A. Bronshteyn.  
Moskva, Goskulturosvetizdat, 1956-

V. illus.

Lib. No: 1956

LW

KOLCHIN, Nikolay Iosafovich, prof.; GIMCHEV, Mikhail Vladimirovich,  
dotsent; NARYSHKIN, I.I., otv.red.

[Design of mechanisms of industrial machinery] Raschet i proekti-  
rovanie mekhanizmov proizvodstvennykh mashin; konspekt lektsii pro-  
fessora N.I.Kolchina obrabotan i dopolnen dotsentom M.V.Gimchevym.  
Leningrad, 1960. 73 p. (MIRA 14:6)

1. Leningrad. Politekhnikheskiy institut.  
(Machinery—Design and construction)

L. 9488-66 ETC(m) WW  
ACC NR: AT5028812

SOURCE CODE: UR/2563/65/000/250/0029/0033

31  
B+1

AUTHOR: Gnuchev, M. V.; Rozanov, L. N.; Pechatnikov, M. S.

ORG: Leningrad Polytechnic Institute (Leningradskiy politekhnicheskii institut)

TITLE: A bellows-volumetric manometer for pressure measurements in logarithmic units

SOURCE: Leningrad. Politekhicheskii institut. Trudy, no. 250, 1965. Avtomatizatsiya i tekhnologiya mashinostroyeniya (Automation and technology of machinery manufacture). 29-33

TOPIC TAGS: manometer, pressure gage, pressure measuring instrument *am*

ABSTRACT: There are still no simple, universal designs of mechanical manometers fit for industrial production. Usually the designs incorporate metal or metallized membranes as the pressure sensors in these devices, and bellows are rarely used because of the frequent appearance of residual deformations due to a low elastic limit. The present authors note that bellows should not be disregarded; bellows have a higher sensitivity and make it possible to considerably reduce the size of manometers without sacrificing operating parameters. This paper attempts to investigate the possibilities of bellows manometers for measuring pressures in a broad range (three and more orders of magnitude). A description is given of the design of a manometer for pressures of  $10^5 - 10^1$  n/m<sup>2</sup> (760-1 mm Hg). Fig. 1 shows an equivalent diagram of a manometer with three bellows represented in the figure as springs. The relationship of the area of the bellows  $f_i$  to rigidity  $g_i$  (where  $i$  is the number of the bellows,

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L 9488-66

ACC NR: AT5028812

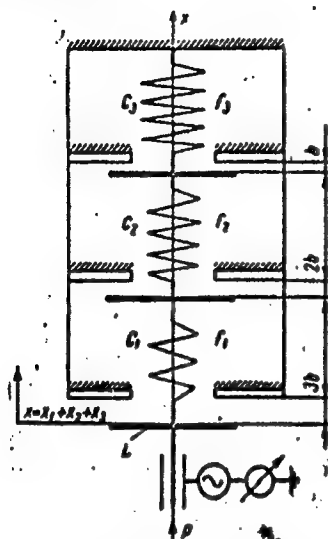


Fig. 1. Equivalent diagram of a bellows manometer:  $C$  and  $f$  are the rigidity and area of the bellows;  $L$  is the manometer carriage, connected to the inner casing of the cylindrical condenser;  $b$  is the gap between the rigid annulus and the support in the manometer housing;  $P$  is pressure

starting from the lowest one) is selected in such a way as to obtain appreciable deformation in various ranges of pressure. Every bellows has a deformation limiter. The design described applies in all cases requiring measurements of large pressure ranges in low and medium vacuum. The high value of the overall

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I. 9488-66

ACC NR: AT5028812

variation in the capacity simplifies the electrical circuit of the device which, together with the linearity of the characteristic, makes it applicable for industrial uses. Orig. art. has: 4 figures, 9 formulas, and 1 table.

SUB CODE: 13, 14 / SUBM DATE: none / OTH REF: 003

*Beh*  
Card 3/3

BLOKHOV, V.P.; GNUCHEV, N.N.

Result of a simultaneous plate and inclined media in the examination of normal subjects as carriers of Loeffler's bacillus. Zhur. mikrobiol.epid.i immun. 31 no.11:79-80 N '60. (MIRA 14:6)  
(BACTERIOLOGY—CULTURES AND CULTURE MEDIA)  
(CORYNEBACTERIUM DIPHTHERIAE)

BLOKHOV, V.P.; GNUCHEV, N.N.

Uselessness of Strogov's medium as a test object in differentiating  
saprophytic from pathogenic bacteria of the enteric group. Zhur.  
mikrobiol.epid.i immun, 32 no.3:69-70 Mr '61. (MIRA 14:6)  
(~~INTESTINES~~ MICROBIOLOGY)  
(BACTERIOLOGY—CULTURES AND CULTURE MEDIA)

GMUCHEV, N. N., (Major of the Medical Service), and BLOKHEV, V. P., (Guards  
Lieutenant Colonel of the Medical Service)

"Experience in the Use of K. V. Yekimova's Medium Enrichment for  
Bacteriological Examination for Dysentery Pathogens"

Voyenno-Meditsinskiv Zhurnal, No. 12, December 1961, pp 62-73

BLOKHOV, V. P., gvardii podpolkovnik meditsinskoy sluzhby; GRUCHEV,  
N. N., mayor meditsinskoy sluzhby

Use of K. V. Efimova's enriching medium in the bacteriological  
study of the causative agent of dysentery. Voen.-med. zhur.  
no.12:64-65 D '61. (MIRA 15:7)

(BACTERIOLOGY—CULTURES AND CULTURE MEDIA)  
(DYSENTERY)

KHOMUTOV, R.M.; KARPEYSKIY, N.Ya.; SEVERIN, Ye.S.; GNUCHEV, N.V.

Mechanism of the interaction of cycloserine with pyridoxal and  
pyridoxal enzymes. Dokl. AN SSSR 140 no.2:492-495 S '61.  
(MIRA 14:9)

1. Institut radiatsionnoy i fiziko-khimicheskoy biologii AN SSSR.  
Predstavleno akademikom V.A.Engel'gardtom.  
(Isoxazolidinone) (Pyridoxal)

BRAUNSHTEYN, A.Ye.; GNUCHEV, N.V.; IOZNANSKAYA, A.A.

Nonenzymatic reamination of  $\delta$ -aminolevulinic acid, Dokl. AN SSSR  
152 no.5:1239-1242 O '63. (MIRA 16:12)

1. Institut radiatsionnoy i fiziko-khimicheskoy biologii AN SSSR.
2. Chlen-korrespondent AN SSSR (for Braunshteyn).

ONDAR, M.V., LITMAN, I.A., POZNAN-SERVA, A.A.

Synthesis of 5-aminolevulinic (5-AL) and 4,5-dioxovaleric-  
(5-DO) acids. Biokhimiya 30 no.18161-164 Jan-F '65.

(MIRA 1816)

1. Institut relatielnoy i fiziko-khimicheskoy biologii AN  
SSSR, Moskva.

DUBROV, N.F., kand. tekhn. nauk; MIKHAYLOV, O.A., kand. tekhn. nauk;  
 FEL'DMAN, I.A.; DANILOV, A.M.; SOROKIN, P.Ya., kand. tekhn. nauk,  
 starshiy nauchnyy sotrudnik; BUTAKOV, D.K., kand. tekhn. nauk,  
 dots.; SOYFER, V.M.; LATASH, Yu.V., mladshiy nauchnyy sotrudnik;  
 ZAMOTAYEV, S.P.; BEYTEL'MAN, A.I.; SAPKO, A.I.; PETUKHOV, G.K.,  
 kand. tekhn. nauk; YEDNERAL, F.P., kand. tekhn. nauk, dots.;  
 LAPOTYSHKIN, N.M., kand. tekhn. nauk, starshiy nauchnyy sotrudnik;  
 ROZIN, R.M.; NOVIK, L.M., kand. tekhn. nauk, starshiy nauchnyy  
 sotrudnik; LAVRENT'YEV, B.A.; SHILYAYEV, B.A.; SHUTKIN, N.I.;  
 GNYCHEV, S.A., kand. tekhn. nauk, starshiy nauchnyy sotrudnik;  
 LYUDMAN, K.F., doktor-inzh., prof.; GHUZIN, V.G., kand. tekhn.  
 nauk; BARIN, S.Ya.; POLYAKOV, A.Yu., kand. tekhn. nauk; FEDCHENKO,  
 A.I.; AGEYEV, P.Ya., prof., doktor; SAMARIN, A.M.; BOKSHITSKIY,  
 Ya.M., kand. tekhn. nauk; GARNYK, G.A., kand. tekhn. nauk;  
 MARKARYANTS, A.A., kand. tekhn. nauk; KHAMAROV, A.D., prof.,  
 doktor tekhn. nauk; TKDER, L.I.; DANILOV, P.M.

Discussions. Biul. TSNIICM no.18/19:69-105 '57. (MIRA 11:4)

1. Direktor Ural'skogo instituta chernykh metallov (for Dubrov).
2. Direktor Tsentral'nogo instituta informatsii chernoy metallur-  
 gii (for Mikhaylov).
3. Nachal'nik nauchno-issledovatel'skogo  
 otdela osobogo konstruktorskogo byuro tresta "Elektropech'" (for  
 Fel'dman).
4. Nachal'nik martenovskoy laboratorii Zlatoustovskogo  
 metallurgicheskogo zavoda (for Danilov, A.M.).
5. Laboratoriya  
 protsessov stalevareniya Instituta metallurgii Ural'skogo filiala  
 AN SSSR (for Sorokin).

(Continued on next card)

DUBROV, N.F.---(continued) Card 2.

6. Ural'skiy politekhicheskiy institut (for Butakov). 7. Starshiy inzhener Bryanskogo mashinostroitel'nogo zavoda (for Soyfer). 8. Institut elektrosvarki im. Patona AN URSS (for Latash). 9. Nachal'nik Tsentral'noy zavodskoy laboratorii "Uralmashzavoda" (for Zamotayev). 10. Dnepropetrovskiy metallurgicheskiy institut (for Sapko). 11. Moskovskiy institut stali (for Yedneral). 12. Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (for Gmachev, Lapotyshkin). 13. Starshiy master Leningradskogo zavoda im. Kirova (for Rozin). 14. Institut metallurgii im. Baykova AN SSSR (for Novik, Polyakov, Garnyk). 15. Nachal'nik tekhnicheskogo otdela zavoda "Bol'shevik" (for Lavrent'yev). 16. Starshiy inzhener tekhnicheskogo otdela Glavspetsstali Ministerstva chernoy metallurgii (for Shilyayev). 17. Zamestitel' nachal'nika tekhnicheskogo otdela zavoda "Elektrostal'" (for Shutkin). 18. Freybergakaya gornaya akademiya, Germanskaya Demokraticheskaya Respublika (for Lyudeman). 19. Zaveduyushchiy laboratoriyey stal'nogo lit'va Tsentral'nogo nauchno-issledovatel'skogo instituta tekhnologii i mashinostroyeniya (for Gruzin). 20. Starshiy master elektrostaleplavil'nykh pechey Uralvagonzavoda (for Barin). 21. Zamestitel' nachal'nika elektrostaleplavil'nogo tsokha zavoda "Sibelektrostal'" (for Fedchenko). 22. Zaveduyushchiy kafedroy metallurgii stali i elektrometallurgii chernykh metallov Leningradskogo politekhnicheskogo instituta (for Agayev). 23. Zamestitel' direktora Instituta metallurgii im. Baykova AN SSSR, chlen-korrespondent AN SSSR (for Samarin).

(Continued on next card)

DUBROV, N.F.---(continued) Card 3.

24. Nachal'nik laboratorii Tsentral'nogo nauchno-issledovatel'skogo instituta chernoy metallurgii (for Bokshitskiy). 25. Zaveduyushchiy kafedroy elektrometallurgii Sibirskogo metallurgicheskogo instituta (for Kramarov). 26. Nachal'nik elektrostaleplavil'nogo tsokha Kuznetskogo metallurgicheskogo kombinata (for Tedor). 27. Nachal'nik elektrometallurgicheskoy laboratorii Kuznetskogo metallurgicheskogo kombinata (for Danilov, P.M.).

(Steel--Metallurgy)

GRUCHEV, S. M.

The apprentice millhand on electric furnaces in the steel works. Sverdlovsk, Gos. nauch.-tekhn. izd-vo lit-ry po cherno i svetnoi metallurgii, 1945. 123 p. (V pomoshch' rabochim massovykh professii) (50-4046)

TN706.96

LEYKIN, V.Ye.; SAKHARUK, P.A.; ONUCHEV, S.M., kandidat tekhnicheskikh nauk,  
redaktor.

[Electrometallurgy of steel and iron alloys] Elektrometallurgiya  
stali i ferrosplavov. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po  
chernoi i tsvetnoi metallurgii, 1953. 639 p. (MLRA 7:6)  
(Steel--Electrometallurgy) (Iron alloys--Electrometallurgy)

GNUCHEV, S.M.

500  
RML

4053 AEC-11-2435 (Pt. 3) (p. 39-40)

INVESTIGATION OF NON-METALLIC INCLUSIONS BY  
RADIOGRAPHY. S. M. Gnuchev and V. G. Kuklev. p. 39-  
40 of CONFERENCE OF ACADEMY OF SCIENCES OF THE  
USSR ON THE PEACEFUL USES OF ATOMIC ENERGY,  
JULY 1-6, 1955. SESSION OF THE DIVISION OF TECH-  
NICAL SCIENCE. (Translation). 10p.

This paper was originally abstracted from the Russian  
and appeared in Nuclear Science Abstracts as NSA 8-7800.

RML RML

G. NUCHEV, S. M.

17500

INVESTIGATION OF NON-METALLIC INCLUSIONS BY MC

RADIOGRAPHY. S. M. Ganchev and V. G. Kikley. p.68-

7th Meetings of the Division of Technical Sciences.

Section of the Academy of Sciences of the U.S.S.R. on the

Problems of the Use of Atomic Energy. July 1-5, 1965. Moscow,

Publishing House of the Academy of Sciences of the U.S.S.R.,

1965. 373p. (in Russian)

A radioactive calcium isotope was used in a study of the effect of the pouring method on the distribution of non-metallic inclusions in the ingot. For this purpose powdered calcium oxide or silicate containing the radioactive isotope was added to the steel while pouring. The particle size of the powder varied mainly between 16 and 40 microns. A study was made of the distribution of the inclusions in the ingot caused by the first portions of the metal, entering in the mold inclusions which got into the ingot while it is being bottom or top poured, and of those which enter it during after-teeming the top of the ingot. The distribution of the inclusions in the ingot was investigated by contact autoradiography control of the surface of longitudinal specimens

out from 75- and 200- $\mu$  ingot. For the autoradiograms Soviet "XX" grade film was used. In some cases the data obtained by analysis of the radiograms were corroborated by counting the activity of preinclusions of the non-metallic inclusions electrolytically isolated from the metal with a counter of the Geiger-Müller type. Analysis of the autoradiograms showed that in both pouring methods--bottom and top pouring--mainly the bottom part of the ingot is contaminated, and that the contamination is greater in the case of after-teeming. Radioactive inclusions which were brought into the ingot during after-teeming were found also in the top of the ingot. Under equal conditions of contamination of the incoming metal with radioactive inclusions less inclusions were found when the metal was bottom poured than when it was top poured. Autoradiograms show that a considerable part of the native inclusions remains in the central runner. During bottom pouring part of the radioactive inclusions were carried into the surface of the ingot due to the movement of the metal in the mold under the action of the rising stream. (in)

of ① 94

*Gauchey, S.H.*

*C* ✓ The determination of oxygen by the aluminum method during the smelting of alloy steels in electric furnaces. S. H. Gauchey, *Zavodskaya Lab.* 21, 24-5 (1956).—The method is intended for the detn. of O in Mn, Cr, V, and Si-contg. structural steels, and the results compare satisfactorily with those obtained by vacuum melting. W. H. S.

*of*

GNUCHEV, S.M., kandidat tekhnicheskikh nauk.

Behavior of oxygen in an electric furnace bath in the process of  
metal smelting by oxygen blasting. Sbor.trud.TSNIICHM no.13:354-367  
'56. (MLRA 9:11)

(Electrometallurgy)  
(Oxygen--Industrial applications)

*G. A. Chichay, S. M.*

✓ 9598\* Behavior of Oxygen and Nitrogen in the Bath of the Electric Arc Furnace During Oxidation With Oxygen and With Ore. *Povedenie kisloroda i azota v vanne elektropetchi pri okslenii kislородом ili rudoi.* (Russian.) S. M. Chichay, G. K. Komissarov, and Z. V. Kleshkova. *Stal*, 9: 10, no. 4, 1956, p. 323-327.

Behavior does not depend on whether the metal is oxidized with O or with ore. In the case of O, however, the upper limits of concentration of O and N in the metal are reached in a shorter time and with less consumption of electric power. Tables, graphs, 2 ref.

*Central Sci. Res. Inst. Ferrous Metallurgy*

137 1958 2-2495

*Gnuchev, S.M.*  
Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 44 (USSR)

AUTHOR: Gnuchev, S.M.

TITLE: Studying Nonmetallic Inclusions in Steel by Radiography (Metodika izucheniya nemetallicheskih vkluycheniy v stali pri pomoshchi radiografii)

PERIODICAL: V sb.: Fiz.-khim. osnovy proiz-va stali Moscow, AN SSSR, 1957, pp 633-644. Diskus., pp 650-655

ABSTRACT: A detailed description is given of a method of discovering in steel by contact radiography artificial nonmetallic inclusions containing the radioactive isotope  $\text{Ca}^{45}$ . Before being contact-radiographed, the surface of the templets was wet-polished and carefully degreased. The templets were then stacked on the floor of a dark chamber and were covered with two KhKh X-ray films, opaque paper, a rubber lining, and a plate of Plexiglas. On top of the Plexiglas was placed a weight. Exposure time was 5-6 days, but to show up the outlines of the templets the film was first faintly flashed for 1 second. It was found that  $\text{H}_2\text{O}_2$  vapors, wood, oil, and oil-bearing pigments caused the film to darken; it was found too that, in order to obtain a comparable

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137-1958-2-2495

### Studying Nonmetallic Inclusions in Steel by Radiography

exposure density, the film had to be developed under standard conditions. By introducing into the molten metal  $\text{Ca}^{45}$  in the form of  $\text{CaCO}_3$ ,  $\text{CaO}$ , and metallic  $\text{Ca}$ , then taking contact radiographs, it was shown that the metallic  $\text{Ca}$  contained impurities of radioactive  $\text{P}^{32}$  and  $\text{S}^{35}$ , which produced exposure spots on the film; this made it difficult to identify the exposure spots produced by the  $\text{Ca}^{45}$ . By contrast, the  $\text{CaCO}_3$  and  $\text{CaO}$  contained no impurities. Contact radiographs of templates from 75-kg ingots, into which artificial nonmetallic inclusions had been both siphoned and introduced from above during casting, revealed in this case that the artificial nonmetallic inclusions were distributed mainly along the surface of the ingots and the pouring gates, though they were encountered also in cross-sections of the ingots, especially in the lower part.

A. Sh.

1. Steel--Inclusions    2. Radiography--Applications

Card 2/2

AUTHORS: Barshcheva, A.S. and Gnuchev, V. S., Engineers

129-7-12/16

TITLE: High speed thin layer cyaniding during high frequency heating.  
(Skorostnoye tonkosloynoye tsianirovaniye pri nagreve tokami vysokoy chastoty).

PERIODICAL: "Metallovedenie i Obrabotka Metallov" (Metallurgy and Metal Treatment), 1957, No.7, pp.48-50 (U.S.S.R.)

ABSTRACT: The current type cyaniding in baths consisting of molten cyanide salts enables the saturation of the surface of components with carbon and nitrogen to depths of 0.1 to 0.6 mm and such components can then be hardened to  $R_c = 60$ . This process is impracticable for small components used in the instrument industry and the aim of the authors was to develop a process which permits obtaining a cyanide layer of a depth less than 0.1 mm with hardnesses of  $R_c = 60$  and more. In this paper the results are described which were obtained by cyaniding by means of high frequency heating; two variants of this process were tried, namely, applying a paste prior to heating and cyaniding in molten potassium ferrocyanide. After degreasing the component with benzene a 3 to 4 mm thick layer of the paste was applied, on the top of which potassium ferrocyanide powder was sprayed and, following that, the components were dried

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High speed thin layer cyaniding during high frequency heating. (Cont.)

129-7-12/16

for 40 to 60 minutes at 60 to 70 C. The heating was effected by a current of 200 kc/s, 160 kW. The thickness of the saturated layers varied between 0.023 and 0.07 mm. In the other variant potassium ferrocyanide (90%), barium chloride (10%), were placed in a crucible and molten by placing it into the first position of the inductor, then the components were immersed into the melt and heated in the second position of the inductor to 840-880 C. In both variants diffusion layer thicknesses of 0.04 to 0.06 mm were obtained and the hardness at the surface varied between  $R_c = 59$  and 62. Using for such components medium carbon steels ensures obtaining a strong base and eliminates the possibility of squeezing through the thin diffusion layer during normal operation. The first variant requires a number of preparatory operations concerned with the manufacture of the paste and with drying of the paste coated components and, therefore, it is not recommended for series production. In the case of cyaniding in molten salts it is possible to obtain a given layer thickness with an accuracy up to 0.01 mm and the process can be fitted into an automatic

Card 2/3

PA - 2416

**AUTHOR** GNUCHEV S.M., PRANTSOV V.P., MORENKO G.F., KOMISSAROV G.K.,  
KLOCHKOVA Z.V.

**TITLE** Melting of Structural Steel in the Electric Furnaces with the  
Use of Oxygen Lance. (Vyplavka konstruktsionnoy stali v  
elektropechakh s produvkoy kislorodom. Russian)

**PERIODICAL** Stal' 1957, Vol 17, Nr 3, pp 228 - 232 (U.S.S.R.)  
Received: 5/1957 Reviewed: 5/1957

**ABSTRACT** The investigation of the technology of the production of  
structural steel by means of the addition of greater quantities  
of calcium during the melting and on the occasion of the use  
of gaseous oxygen during the oxidation period in place of iron  
ore showed the following results: the phosphorus content in the  
metal after complete smelting of the burden amounted to  
0,015 - 0,025 % in the case of experimental smeltings instead  
of 0,050 - 0,060 % in the case of the usual smelting. The  
oxygen content in the metal before the removal of the oxidation  
slag at 0,055 - 0,22 % C amounted to 0,0490 - 0,0190 %. The  
MgO content in the slag at the end of the oxidation period  
varied between 9,90 and 15,51 %, which does not point in the  
direction of an increased destruction of the bottom during  
the blowing. The oxygen content in the metal of the experimental

CARD 1/2

CARD 2/2

CIA-RDP86-00513R000615510016-6

СЛЮЖИКИ И СВОЙСТВА СТАЛИ

Д.Ф.Черного	Исследования влияния электромагнитного облучения арматурной стали на ее свойства при изгибе и растяжении.
М.С.Прохорова Л.И.Кузнецова	Результаты исследований влияния температуры на свойства стали.
Ю.А.Новикова Н.Г.Гармашева М.Я.Васильева	Исследования влияния температуры на свойства стали.
В.Г.Григорьев	Свойства стали при изгибе и растяжении.
С.А.Иванович В.К.Новикова А.С.Лобода	Исследования влияния температуры на свойства стали.
В.Г.Кузнецов С.М.Григорьев	Исследования влияния температуры на свойства стали.
В.И.Татаров Ю.Д.Смирнов	Исследования влияния температуры на свойства стали.
В.И.Татаров Ю.Д.Смирнов	Исследования влияния температуры на свойства стали.
А.М.Новикова В.С.Розенберг	Исследования влияния температуры на свойства стали.
В.А.Новикова В.П.Новикова	Исследования влияния температуры на свойства стали.

Report submitted for the 5th Physical Chemical Conference on Steel Production, Moscow-- 30 Jan 1959.

S/130/60/000/006/007/01i

AUTHORS: Gnuchev, S. M., Zhukov, D. G., Keys, N. V., Klochkova, Z. V.,  
Danilov, P. M., Konovalov, K. N.,

TITLE: On the Problem of Transformer Steel Melting

PERIODICAL: Metallurg, 1960, No. 6, pp. 18-22

TEXT: Information is given on peculiarities in the technology of transformer steel melting at the "Dneprospetsstal" Plant, the Kuznetskiy metallurgicheskiy kombinat (Kuznetsk Metallurgical Combine) and the Chelyabinskiy metallurgicheskiy zavod (Chelyabinsk Metallurgical Plant). A special feature adapted by the Dneprospetsstal' plant is that a relatively high content of C and S is obtained in the molten charge (0.30-0.40 C and 0.030-0.035% S). The carbon is oxidized by the ore and then by gaseous oxygen. The reduction time depends on the sulfur obtained in the finished metal (not over 0.005%). After teeming the metal is subjected to vacuum treatment in the ladle. At the Kuznetsk plant the melting process is conducted in a highly organized manner. The necessary amount of ore and lime is added to the charge so that the oxidizing and the melting stage are combined. After repeated slag formation the pool is subjected to oxygen blast; during the blast the carbon content is reduced to

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On the Problem of Transformer Steel Melting

S/130/00/000/000/001/011

0.02-0.03%. Until 1960, oxidizing at the Chelyabinsk Metallurgical Plant was brought about with iron ore and subsequent elimination of carbon by blowing the pool with oxygen. Presently, the oxidation and the melting stage have been combined; simultaneously with the charge 2.5 t iron ore and 1.0 t lime are introduced. It was stated that the amount of rejects was relatively low at all the plants. The dependence of surface defects in slabs on the metal temperature in the ladle is given and shows that the minimum percentage of rejects is obtained at a temperature of 1570-1590°C. The content of impurities in metals produced by the enumerated plants is represented by graphs. The metal produced at the Chelyabinsk plant contained the highest amounts of carbon, sulfur, manganese and nickel. The metal from Dneprospetsstal' contained the lowest amounts of carbon, sulfur and chromium (to 0.005%). The metal from the Kuznetsk Combine contained more carbon and about 40% of the melts contained 0.006-0.008% S. Thousandths of a per cent of Ti were revealed in all the metals. Data on the output of high-grade rolled sheets made of metal which was produced by the aforementioned plants do not indicate the advantages of one or the other technology, since an effect of the used technology on the output was not established. There are 2 sets of graphs and 3 tables. ✓

ASSOCIATIONS: TsNIICHM, Chelyabinskiy metallurgicheskiy zavod (Chelyabinsk Metallurgical Plant) Kuznetskiy metallurgicheskiy kombinat (Kuznetsk Metallurgical Combine)

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S/137/61/000/007/003/072  
A060/A101

AUTHORS: Gnuchev, S. M.; Klochkova, Z. V.

TITLE: Behavior of hydrogen under metal blowing with undried oxygen

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 7, 1961, 44, abstract 7V296  
("Sb. tr. Tsentr. n.-i. in-ta chernoy metallurgii", 1960, no. 21,  
160-170)

TEXT: At the "Elektrostal'" and "Dneprospetsstal'" Plants experiments have been carried out on smelting in arc furnaces steels of grades 1X18H9T (1Kh18N9T), 12XH3A (12KhN3A), 12X2H4A (12Kh2NChA), 12XMΦ (12KhMF), 25XΓΦA (25KhGFA), 30XΓCA (30KhGSA) while blowing technically pure O<sub>2</sub> through the vat. Dried O<sub>2</sub> with moisture content of 0.1 g/m<sup>3</sup> was used in the "Elektrostal'" Plant and moisture-saturated O<sub>2</sub> - in the "Dneprospetsstal'" Plant. The experiments carried out have shown that the H-contents in the metals at the end of the oxidation period are practically the same after blowing with dried and undried O<sub>2</sub>; it is determined by the oxidation rate of the C. ✓

B. Barskiy

[Abstracter's note: Complete translation]

Card 1/1

3/133/61/000/006/007/017  
A054/A129

AUTHORS: Gnuchev, S. M., Candidate of Technical Sciences, Trakhimovich, V. I.,  
Tregubenko, A. F., Frantsov, V. P., Bobkov, T. M., Engineers

TITLE: Melting steel in arc-furnace with electromagnetic stirring of the  
bath

PERIODICAL: Stal',<sup>21</sup> no. 6, 1961, 519-522

TEXT: Electromagnetic stirring was first applied in the USSR, in 1956, to a ΔCB-18 (DSV-18) type furnace (diameter of the working area: 3,070 mm, depth of the bath. 605 mm, transformer capacity: 8,000 kw); further equipment for stirring was installed in 1959. Tests were carried out to determine the effect of electromagnetic stirring on the oxygen and sulfur content during the reduction period and to examine the efficiency of this process. The metal was stirred in such a way, (Fig. 1a) that after rising from the lower layers at the outlet opening it spread over the bath surface while two rotation centers were forming at the bridge. In the present series of tests the maximum rate of metal movement was 0.25 - 0.40 m/sec at the rear furnace banks and 0.14 - 0.25 m/sec at the frontal furnace banks, with a frequency of 0.95 - 1.0 cps. During the

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Melting steel in arc-furnace ...

S/133/61/006/006/007/001

A054/A129

tests the electromagnetic stirring went on for the entire period of refining. Based on the results obtained for the electromagnetic stirring of low-carbon structural steels, (12XH3A = 12KhN3A, 15XM = 15KhM) it was found that this process compared with the conventional method accelerated deoxidation considerably, viz. by 30 - 40 minutes. When deoxidizing took place for the usual period, electromagnetic stirring resulted in a more thorough deoxidation (0.003 - 0.005% oxygen content before tapping instead of 0.005 - 0.007% when applying the conventional method). Increased deoxidation by electromagnetic stirring was also recorded for stainless low-carbon steels (0.0035 - 0.0070% oxygen instead of 0.007 - 0.013% in the old process). The distribution coefficient of sulfur during reduction when applying the electromagnetic stirring method was higher, whereas the sulfur-content in the metal was lower than in the usual castings. No increase in hydrogen and nitrogen content was observed, nor did the furnace bottom display any increased wear and tear when electromagnetic stirring was applied. It was possible to accelerate the skimming of slag by 5-10 minutes, which increased the furnace capacity by 10%; moreover, manual labor could be entirely eliminated from this process. The temperature of the metal reached an average value more quickly and could be controlled more easily than in the usual manner. The bath also had a more uniform chemical composition. All these factors

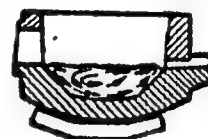
Card 2/3

Melting steel in arc-furnace ...

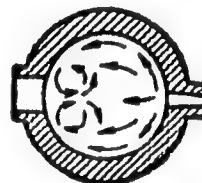
S/133/61/000/006/007/017  
A054/A129

improved the quality of the metal considerably. It was found that the waste decreased in electromagnetically stirred molten metals. This could be established for 18XHBА (18KhNVA), 12XII3A (12KhN3A), 40XHMA (40KhNMA) steels. The waste in ball bearing steel decreased also, as a result of the drop in globular inclusions, whereas the oxide and sulfide impurities occur in about the same amounts in both processes. The drawbacks of the electromagnetic stirring equipment are: 1) the air-cooling of the stators is insufficient and does not prevent their overheating; 2) on account of the slow motion of the metal at the bath surface it is not possible to mechanize the stirring of slag. For this purpose it would be necessary to raise the current intensity in the stator above the nominal value and to intensify cooling suddenly; 3) in the present construction the bath must first be removed when repairs are necessary, when the stator has to be mounted or dismantled. There are 3 figures, 4 tables and 2 Soviet-bloc references.

Fig. 1a: Scheme of the metal-circulation in the bath applied in the tests



a



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S/081/61/000/021/027/094  
B101/B147

AUTHOR: Gnuchev, S. M.

TITLE: Determination of small nitrogen amounts in steel

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 21, 1961, 108, abstract  
21D85 (Sb. tr. Tsentr. n.-i. in-t chernoy metallurgii,  
no. 19, 1960, 132 - 135)

TEXT: To verify the stability of results obtained by various analytical methods, the  $N_2$  content was determined in one and the same nickel chromium structural steel samples by three methods: (1) chemical method with volumetric  $N_2$  determination; (2) chemical method with colorimetric nitrogen determination; and (3) method of vacuum melting with  $N_2$  determination "based on the nonabsorbed residue" (RZhKhim, 1961, 20D119). Data obtained by methods 2 and 3 are very close. Results found by method 1 are strongly exaggerated (1.5 - 2 fold). The maximum deviation of results for two parallel samples, analyzed by each of the three methods mentioned, generally does not exceed 0.001% absolute. Therefore, the

Card 1/2

MAZUROV, Ye.F.; GNUCHEV, S.M.; SKRIPCHUK, V.S.; MARIN, A.A.; LYALIN, Ye.S.

Sponge iron used as a charge material. Metallurg 9 no.11:17-19  
N '64. (MIRA 18:2)

1. Tsentral'nyy nauchno-issledovatel'skiy institut chernoy  
metallurgii imeni I.P.Bardina.

TRAKHIMOVICH, V.I., SALAUTIN, V.A., GNUCHEV, S.M.

Methods for determining the technological plasticity of a metal  
in hot deformation. Zav. lab. 30 no.9:1116-1119 '64.  
(MIRA 18-3)

1. Tsentral'nyy nauchno-issledovatel'skiy institut chernoy  
metallurgii imeni Bardina.

I 9538-66 EWT(m)/EWA(d)/EWP(t)/EWP(s)/EWP(b)  
ACC NR: AP5026288

MJW/JD

SOURCE CODE: UR/0125/65/000/010/0007/0011

AUTHOR: <sup>44.55</sup> Russiyan, A. V. (Candidate of technical Sciences); <sup>44.55</sup> Salautin, V. A. (Engineer); <sup>44.55</sup> Pavperova, I. A. (Engineer); <sup>44.55</sup> Gnuchav, S. M. (Candidate of technical sciences)

ORG: <sup>44.55</sup> TsNIICHM

TITLE: Resistance of <sup>44.55</sup> austenitic steel EI847 to the formation of hot cracks during welding as a function of <sup>44.55</sup> melting technology <sup>52 B</sup>

SOURCE: <sup>44.55</sup> Avtomaticheskaya svarka, no. 10, 1965, 7-11

TOPIC TAGS: austenitic steel, hot crack, weld defect, metallurgic furnace, arc furnace, induction furnace, ferroalloy / EI847 (0Kh16N15M3B) austenitic steel

ABSTRACT: The purely austenitic EI847 (0Kh16N15M3B) steel is designed chiefly for tube production. Its yield point, tensile strength and other properties are sufficiently high at 20 and 600°C. Since, however, occasionally melts of this steel do not behave up to expectations, the authors experimentally investigated the effect of different conditions of its production on its resistance to the formation of hot cracks in the near-weld zone and in the weld metal. Some melts were obtained in a 20-ton arc furnace and others in a 50-kg induction furnace on either using fresh charge (carbon steel or armco iron plus alloy elements) with oxidation of slag or remelting the alloyed wastes with addition of oxygen. Alloying with either alloy metals (Cr metal, Nb metal, Mo metal) or ferroalloys (ferrochrome, ferroniobium, fer-

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UDC: 621.791.75:621.746.76

L 9538-66

ACC NR: AP5026288

0

romolybdenum) was employed. Specimens of these steels were subjected to torsional fracture tests at 1250°C, since such tests satisfactorily simulate the conditions of the thermal welding cycle in the near-weld zone along with the formation of hot cracks. Findings: the melts of steel to which alloy metals were added displayed higher technological qualities and contained smaller amounts of impurities and hence also were more resistant to the formation of hot cracks than the melts to which industrial ferroalloys were added. Orig. art. has: 1 figure, 5 tables.

SUB CODE: 11,13/ SUM DATE: 25Jul64/ ORIG REF: 008/ OTH REF: 000

Card

95  
2/2

RUSSIAN, A.V.; SMITH, H.W.; JOURNAL OF POLYMER SCIENCE, 1964, 13, 103-110, 10 refs.

Resistance of A1847 steel to hot cracking decreases with  
depending on the technology of smelting. Arton, str. 18  
no. 10:7-11 0 165. (MIRA 18:12)

1. Tsentral'nyy issledovatel'skiy institut chernoy metallurgii.

L 27427-66 EWT(m)/EWA(d)/EWP(v)/I/EWP(t)/ETI/EWP(k) IJF(c) JD/HN/JG  
ACC NR: AP6017780 SOURCE CODE: UR/0133/65/000/009/0855/0855

AUTHOR: Trakhimovich, V. I.; Gnuchey, S. M. 41  
B

ORG: Central Scientific Research Institute of Ferrous Metallurgy im. I. P. Bardin  
(Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii)

TITLE: Hot ductility and crack resistance in welding 1Kh13M2BF steel containing  
additions of cerium, lanthanum and yttrium 18

SOURCE: Stal', no 7, 1965, 835 18

TOPIC TAGS: ductility, induction furnace, rare earth metal, steel, boron/1Kh13M2BF  
steel

ABSTRACT: The steel was melted in a 40-kg induction furnace. Rare earth metals (REM) (98% pure) were introduced in a 0.01-0.15% quantity 3 minutes before tapping. Their residual contents, independent of the calculated addition, amounted to 0.003-0.010%. The combined or individual introduction of boron and REM into 1Kh13M2BF [sic] steel increases its ductility and crack resistance. Up to 0.004% boron increases these characteristics, but if it is more than 0.004% it decreases them. The addition of REM permits the preservation of these high indicators of ductility in steel containing up to 0.010% B. The introduction of REM into steel without boron offers the same effect as the best addition of boron. The high indicators of ductility and crack resistance in this case are obtained in the entire range of calculated and residual concentrations of REM investigated. The individual effect of cerium, lanthanum, or yttrium on ductility was not observed. [JPRS]

SUB CODE: A1, 13, 20 / SUBM DATE: none  
Card 1/1

UDC: 669.18-412:621.746.753.001.5

L 31323-66 EWP(w)/EWA(d)/T/EWP(t) IJP(c) JD/JG

ACC NR AP5026288

SOURCE CODE: UR/0125/65/000/010/0007/0011

AUTHOR: Russiyen, A. V. (Candidate of technical Sciences); Salautin, V. A. (Engineer); Pavperova, I. A. (Engineer); Gnuchey, S. M. (Candidate of technical sciences)

ORG: TsNIICHM

TITLE: Resistance of austenitic steel EI847 to the formation of hot cracks during welding as a function of melting technology

SOURCE: Avtomaticheskaya svarka, no. 10, 1965, 7-11

TOPIC TAGS: austenitic steel, hot crack, weld defect, metallurgic furnace, arc furnace, induction furnace, ferroalloy / EI847 (OKh16N15M3B) austenitic steel

ABSTRACT: The purely austenitic EI847 (OKh16N15M3B) steel is designed chiefly for tube production. Its yield point, tensile strength and other properties are sufficiently high at 20 and 600°C. Since, however, occasionally melts of this steel do not behave up to expectations, the authors experimentally investigated the effect of different conditions of its production on its resistance to the formation of hot cracks in the near-weld zone and in the weld metal. Some melts were obtained in a 20-ton arc furnace and others in a 50-kg induction furnace on either using fresh charge (carbon steel or armco iron plus alloy elements) with oxidation of slag or remelting the alloyed wastes with addition of oxygen. Alloying with either alloy metals (Cr metal, Nb metal, Mo metal) or ferroalloys (ferrochrome, ferroniobium, fer-

Card 1/2 27 27 27 UDC: 621.791.75:621.746.76

I. 10450-67 ENT(M)/ENT(W)/ENT(L)/ETI LIT(c) JD/JG  
 ACC NR: AP6022509 SOURCE CODE: UR/0133/66/000/004/0355/0358

AUTHORS: Vinograd, M. I.; Gnuchev, S. M.; Gromova, G. P.; Smirnova, A. V.; Ryl'nikova, A. G.; Osnovin, V. A.; Krasnova, A. K.; Likhnova, I. V.; Yegorshina, T. V.

ORG: none

TITLE: Nonmetallic inclusions in melts of steel 08Kh20N10G6 exhibiting different hot technological plasticity

SOURCE: Stal', no. 4, 1966, 355-358

TOPIC TAGS: alloy steel, metallurgic research, aluminum, cerium / 08Kh20N10G6 alloy steel

ABSTRACT: The effect of aluminum and rare earth elements (mainly cerium) on the technological plasticity of steel 08Kh20N10G6 was investigated. The investigation supplements the results of V. A. Osnovin and S. M. Gnuchev (Byulleten' TsIINChM, 1964, No. 6). The microstructure and twisting strength of the specimens was determined as a function of the temperature and nature of the reducing agent (see Fig. 1). It was found that addition of 1.5--2.0 kg/ton of Al and rare earth metals (0.15--2.0% on the basis of Ce) to steel 08Kh20N10G6 leads to a considerable increase in the high temperature plasticity of the latter. S. B. Lebedeva, I. A. Prokof'yeva, and L. I. Volkova participated in the experimental work.

UDC: 669.15:658.562

Card 1/2

L 10450-04

ACC NR: AP6022509

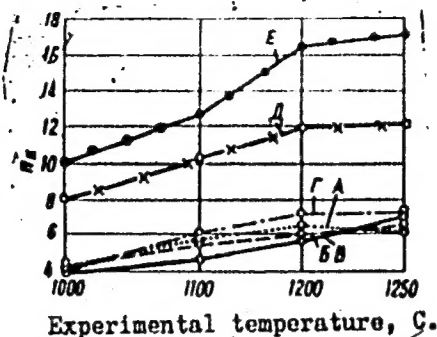


Fig. 1. Results of torsion tests at high temperatures (n<sub>k</sub> - number of revolutions at which failure occurred) of different melts A - E. Specimen A reduced in the usual way. All others reduced as described above.

Orig. art. has: 1 graph and 6 photographs.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 009

ACC NR: AP7003871 (N) SOURCE CODE: UR/0133/67/000/001/0044/0044

AUTHOR: Gnuchev, S.M.; Salautin, V.A.; Klochkova, Z.V.; Mazurov, Ye.P.

ORG: none

TITLE: Effect of some processes during steel melting in a 100-ton arc furnace

SOURCE: Stal', no. 1, 1967, 44

TOPIC TAGS: ~~silicon~~ steel production, silicon steel, ~~ferrous~~ metal melting, arc furnace, steel manufacture process

ABSTRACT: A technological process of making silicon steel in an arc furnace has been developed by the Central Scientific Research Institute of Ferrous Metallurgy im. Bardin in cooperation with the Novolipetsk Metallurgical Plant. The process combines melt-down and oxidizing periods and eliminates ore addition after melting of charge. A water-cooled oxygen lance is used for metal blowing and electromagnetic stirring of melted metal. Nonmetallic impurities are removed by slag treatment while the metal is tapped into the ladle. Oxygen is blown into the bath for 10—15 min when the carbon content reaches 0.08—0.12%. The process decreases the refining period to 1 hr and reduces the oxygen content closer to the equilibrium state and the sulfur content to 0.003%. [AZ]

SUB CODE: //13/ SUBM DATE: none/ ATD PRESS: 5114

Card 1/1

UDC: 669.187.2.001.5

GRUCHEV, V.N.; KHAVAYEV, N.I., tekhn. red

[Briefly on programming] Korotko o programmirovanii. Moskva, Mosk. gos. ekonon. in-t, 1959. 9 p. (MIRA 16:10)  
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